SOV/120-59-1-12/50

Determination of the Energy of Relativistic Particles from Measurements on Multiple Coulomb Scattering

English and the rest are Italian.

ASSOCIATION: Institut yadernoy fiziki AN KazSSR (Institute of Nuclear Physics, Academy of Sciences, KazSSR)

SUBMITTED: January 4, 1958.

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24(5),21(7)

AUTHORS: Boos, E. G., Takibayev, Zh. S. SOV/56-37-1-43/64

TITLE: On an Evaluation of the Energy Characteristics of Shower-producing Particles (Ob otsenke energeticheskikh kharakteristik livnegeneriruyushchikh chastits)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fizki, 1959, Vol 37, Nr 1, pp 292-293 (USSR)

ABSTRACT: It has already been shown experimentally that for the particle momenta p_i (in units μc, where μ denotes the particle mass) in cosmic showers it holds that: $\overline{p_i} \approx 1$, where the individual values no longer deviate from the average value. This fact, as well as the assumption concerning the symmetric flying-apart of the shower particles in the cms, permits an evaluation of the parameter $\gamma_c = 1/\sqrt{1-\beta_c^2}$, where β_c is the velocity of the cms with respect to the laboratory system. The authors of the present "Letter to the Editor" investigate two variants of the symmetric flying-apart: a) the angular symmetry for particles departing under the angles θ_i' and θ_j', if $\theta_j' = \pi - \theta_i'$, and b) if on both sides of a plane that is perpendicular to the direction of the motion of the cms the same number of

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On the Evaluation of the Energy Characteristics of Shower-producing Particles SOV/56-37-1-43/64

particles is found. A table shows the numerical results of theoretical considerations for a number of showers (the experimental data were obtained from references 4-8); the values for γ_c and K for the variants a) and b) at various conditions are given and are briefly discussed in the following. It was found that, under the assumption $p_\perp \approx 1$, an evaluation of the energy characteristic (γ_c and K) in showers, of which only the angular distribution of the secondary particles is known, is possible. The thus obtained γ_c-values agree well with those which have been obtained on the assumption of an exponential energy spectrum of the produced mesons (Ref 7). There are 1 table and 9 references, 4 of which are Soviet.

ASSOCIATION: Institut yadernoy fiziki Akademii nauk Kazakhskoy SSR (Institute of Nuclear Physics of the Academy of Sciences, Kazakhskaya SSR)

SUBMITTED: January 15, 1959

Card 2/2

S/707/60/003/000/003/013
B117/B102

AUTHORS: Boos, E. G., Takibayev, Zh. S.

TITLE: A survey of methods for estimating the energy and the inelasticity coefficient in meson showers produced by cosmic rays

SOURCE: Akademiya nauk Kazakhskoy SSR. Institut yadernoy fiziki. Trudy. v. 3, 1960. Vzaimodeystviye vysokoenergichnykh chastits s atomnymi yadrami, 46-63

TEXT: This survey analyzes various recent methods for estimating the energy of shower-producing particles, which are based on angular distribution measurements of secondary particles. L. D. Landau, A. I. Nikishov, and I. L. Rozental' are mentioned. There are 4 figures, 3 tables, and 35 references: 16 Soviet-bloc and 19 non-Soviet-bloc. The four references to English-language publications read as follows: B. Edwards, J. Losty, D. H. Perkins, K. Pinkau, and I. Reinholds, Phil. Mag. 3, 237, 1958; C. Powell, Report delivered at the Geneva Conference on the Peaceful Use of Atomic Energy, Geneva, 1958; Camerini, Fowler P. H. et al.

A survey of methods for ...

S/707/60/003/000/003/013
B117/B102

Phil. Mag. 41, 413, 1950; V. D. Hupper et al. Phys. Rev. 84, 457, 1951.

Card 2/2

S/707/60/003/000/005/013
B125/B102

24.6700

AUTHORS: Boos, E. G., Takibayev, Zh. S.

TITLE: Transverse momentum distribution of mesons in high-energy showers

SOURCE: Akademiya nauk Kazakhskoy SSR. Institut yadernoy fiziki. Trudy. v. 3, 1960. Vzaimodeystviye vysokoenergichnykh chastits s atomnymi yadrami, 89-99

TEXT: The present paper gives a systematic classification of the transverse momenta following from various theories of multiple meson production at high energies and from various phenomenological schemes. According to the hydrodynamic theory of L. D. Landau (Izv. AN SSSR, seriya fiz., 17, 51, 1953), the formulas

$$\frac{dN}{N\cdot dp_\perp}=\frac{c_2}{4c_1}\cdot\frac{\mu}{M}\cdot\frac{\exp\left[-\frac{L}{6}+\frac{2}{3}\sqrt{L^2-\lambda^2}\right](1+\exp(-2\lambda))^2}{\left[2\cdot\exp(-2\lambda)-\frac{\lambda}{3\cdot\sqrt{L^2-\lambda^2}}(1+\exp(-2\lambda))\right]}; \qquad (3),$$

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$$p_\perp = 2 \cdot \frac{c_1 \cdot M}{\mu} \cdot \frac{\exp\left[-\frac{L}{6} + \frac{1}{3}\sqrt{L^2 - \lambda^2}\right]}{1 + \exp(-2\lambda)}; \quad \lambda < \left|\frac{\sqrt{3}}{2} L\right|; \qquad (4)$$

and Fig. 1 hold for the meson distribution on transverse momenta. M and μ are the nucleon and pion masses respectively. The law of the conservation of momentum is satisfied neither by the Fermi theory nor by Landau's hydrodynamic theory, as practically all values of the inelasticity coefficient disagree with experimental data: The part of mesons with large transverse momenta is considerably larger than it is in reality. According to the Fermi theory, the distribution

$$\frac{dN}{N dp_\perp} = \frac{\gamma^3 \cdot p^2_\perp}{a \cdot f(\rho)} \cdot \int_{-1}^{+1} (1 - y^2)\, dy \int_{-1}^{+1} \frac{d\eta}{(1 - \eta^2)^{3/2} \cdot \left\{\exp\left[\frac{\gamma p_\perp}{\sqrt{1 - \eta^2}} \cdot (1 - \rho\eta y)\right] - 1\right\}}, \qquad (7)$$

где $a = 2{,}413$ и $f(\rho) = \left[\frac{1 + \rho^2}{\rho^3} \cdot \ln\frac{1 + \rho}{1 - \rho} - \frac{2}{\rho^2}\right]$.

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shown in Fig. 2 for γ_c = 10 and for various values of the inelasticity coefficient, is found at high energies and not as predicted (3) and (4). The Fermi theory (taking into account the conservation of momentum) and the Landau theory give correctly the anisotropy of the angular distribution of mesons produced in high-energy nucleon-nucleon collisions. But both theories probably give a much too hard energy distribution of the mesons produced and hence incorrect transverse momentum distributions. With the Bose distribution of pions, a transverse momentum distribution is obtained which depends on the critical temperature (T_{crit} at which the system begins to disintegrate). On the condition of monoenergetic mesons in the center of mass system, the distribution

$$\frac{dN}{Ndp_\perp} = (2\cdot n+1)\cdot\left(1-\frac{p_\perp^2}{p_0^2}\right)^{n-\frac{1}{2}}\cdot\frac{p_\perp}{p_0^2};\ 0\leqslant p_\perp\leqslant p_0, \qquad (11)$$

holds, where p_0 is the momentum of mesons in the center of mass system. For a Heisenberg spectrum

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$$\frac{dN}{N \cdot dp_\perp} = \frac{p_\perp^2 \cdot I_n(\beta)}{(p_\perp^2 + 1)^2} \Big/ \int_0^\infty \frac{p_\perp^2}{(p_\perp^2 + 1)^2} \cdot I_n(\beta) \cdot dp_\perp. \qquad (14)$$

holds in the case of anisotropic angular distribution. The experimental data can by no means be accounted for by monoenergetic or isotropic meson distributions ($n = 0$) in the center of mass system. Heisenberg's ideas on the magnitude of transverse momenta are confirmed experimentally. In the case of $n > 10$, the angular anisotropy is too sharp and does not correspond to the experimental distribution. There are 6 figures, 1 table, and 27 references: 10 Soviet and 17 non-Soviet. The two references to English-language publications read as follows: V. D. Hopper, S. Biswas, J. E. Darby, Phys. Rev., 84, 457, 1957; B. Edwards, F. Losty, D. H. Perkins, K. Pinkau, and F. Reynolds, Phil. Mag. 3, 237, 1958.

Card 4/6

83737

S/056/60/038/004/030/048
B006/B056

24.6900

AUTHORS: Boos, E. G., Takibayev, Zh. S.

TITLE: Distribution of the Transverse Momentum of Shower Particles in Jets

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 38, No. 4, pp. 1276 - 1284

TEXT: The present paper gives experimental data (diagrams Figs. 1-7) on the distribution of transverse momenta of secondary shower particles in jets produced by cosmic rays. Transverse momentum distributions which follow from various theories and also from various phenomenological descriptions of the multiple production of mesons are analyzed and systematized. Analysis and comparison with the experiments led to the following results: (1) It is not possible, by the assumption that all mesons produced are of the same energy, to explain the transverse momentum distribution observed, which is a consequence of the strong anisotropy. It is assumed that in the c.m.s. the anisotropy in meson angular distribution is greater than in the system of excited volumes.

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Distribution of the Transverse Momentum of Shower Particles in Jets

A direct comparison with the experimental angular distribution in the c.m.s. shows that even in this system the experimental angular distribution is considerably less anisotropic. This discrepancy does not occur if one assumes that the energy spectrum of the mesons produced is similar to the spectrum following from the Heisenberg theory (Ref. 1). (2) The hydrodynamic theory by L. D. Landau (Ref. 11) leads to a distribution of the $p_\perp$, which appears to be shifted into the region of high values of the transverse momenta; this is the consequence of an extremely hard energy spectrum of the mesons produced, such as is predicted by this theory. In a more exact variant of this theory as well as in the homogeneous variant (Refs. 14, 12) the distribution of the transverse momenta coincides with that obtained experimentally. (3) The Fermi theory (Ref. 15) in thermodynamic approximation does not lead to transverse momentum distributions agreeing with the experiment. (4) The transverse momentum distribution following from the Heisenberg theory (Refs. 1,10) agrees satisfactorily with the experiment. The energy spectrum of the produced particles resulting from this theory has been experimentally verified (Refs. 2-9). The angular distribution does not follow immediately from the theory, but it was qualitatively described by Heisenberg, who proceeded from the

Distribution of the Transverse Momentum of Shower Particles in Jets

S/056/60/038/004/030/04[illegible]
B006/B056

regular representation of the order of magnitude of the average transverse momenta. The angular distributions in the c.m.s. given on the basis of these representations in Ref. 10 have repeatedly been experimentally verified. (5) It is shown by analysis that the distribution of the transverse momentum amounts may be satisfactorily described both by the hydrodynamic theory and by Heisenberg's field theory. The experimentally observed distribution gives reference to neither of the two theories. I. L. Pomeranchuk, Ye. L. Feynberg and D. S. Chernavskiy, G. A. Milekhin, and I. L. Rozental' are mentioned. There are 8 figures and 25 references: 9 Soviet, 7 Italian, 4 German, 3 US, 1 Swiss, and 1 British.

ASSOCIATION: Institut yadernoy fiziki Akademii nauk Kazakhskoy SSR (Institute of Nuclear Physics of the Academy of Sciences, Kazakhskaya SSR)

SUBMITTED: November 6, 1959

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83762

S/056/60/039/003/012/045
B004/B060

24.4500

AUTHOR: Boos, E. G. 19

TITLE: An Analysis of the Nuclear Interactions in Photoemulsion for Nucleons With $E \geqslant 10^{11}$ ev

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 39, No. 3 (9), pp. 616-623

TEXT: The author made a theoretical investigation of the interaction between shower particles and photographic emulsion at $E \geqslant 10^{11}$ ev by availing himself of two theories involving the use of the tunnel model of the multiple meson generation. The considerations made here are based on photographs taken in the author's laboratory with Ilford G-5 photoemulsion, as well as on unpublished data supplied by laboratories in Moscow and Leningrad. The distribution of the differential probability $\Delta N/N\Delta n$ for the observation of a tunnel of the mass n is shown in Figs. 3,4 for the emulsion mentioned. The relation between the expected multiplicity n_s and the initial energy, as well as the number n of

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nucleons in the tunnel is found on the basis of experimental data. By comparing these values with values obtained theoretically, a conclusion is drawn as to the applicability of the following theories: 1) The hydrodynamic theory by Landau, extended by S. Z. Belen'kiy and G. A. Milekhin (Ref. 12). Equations are written down for the total number N of generated particles and, on the assumption of the shower consisting only of pions and muons, equations are written down for n_s. 2) Heisenberg's theory in a derived form, on the assumption of the primary nucleon undergoing nonelastic collisions with a nucleon or nucleus (Fig. 1). Equation (11) is given for the ratio of the number of K^+ mesons to the total number of charged K and π mesons, and Fig. 2 illustrates this ratio for n,n-collisions and for collisions with a 7-nucleon tunnel as a function of the Lorentz factor γ_c. Table 1 supplies data for the energy, γ_c and Kn of two showers of the type 20 + 12(p) and 18 + 11(p). The author concludes from the analysis made that in the case of $E \geqslant 10^{11}$ ev none of the theories examined gives a good agreement between the distribution of the number of showers along the tunnel and the distribution which is to be expected in the photoemulsion. Landau's

An Analysis of the Nuclear Interactions in Photoemulsion for Nucleons With $E \geqslant 10^{11}$ ev

S/056/60/039/003/012/045
B004/B060

hydrodynamic theory yields much too great a number of collisions ($N_1/N_2 = 1.8$) with large tunnels; Heisenberg's theory extended to nucleon-nucleus collisions yields much too low a number ($N_1/N_2 = 0.3$), while an expectation of $N_1/N_2 = 0.9$ was found for the emulsion. The author thanks D. I. Chernavskiy for his advice and Zh. S. Takibayev for having formulated the problem. There are 4 figures, 1 table, and 25 references: 17 Soviet, 5 US, 1 British, 2 German, 1 Czechoslovakian, and 5 Italian.

ASSOCIATION: Institut yadernoy fiziki Akademii nauk Kazakhskoy SSR (Institute of Nuclear Physics of the Academy of Sciences, Kazakhskaya SSR)

SUBMITTED: March 17, 1960

BOOS, E. G.

Cand Phys-Math Sci - (diss) "Study of nuclear interactions of nucleons in the distribution of transverse impulses of the particles generated." Alma-Ata, 1961. 16 pp with diagrams; (Ministry of Higher and Secondary Specialist Education Kazakh SSR, Kazakh State Univ imeni S. M. Kirov); 200 copies; price not given; bibliography on pp 15-16 (14 entries); (KL, 7-61 sup, 217)

BOTVIN, V.A.; TAKIBAYEV, Zh.S.; CHASNIKOV, I.Ya.; PAVLOVA, N.P.; BOOS, E.G.

Study of three-pointed stars resulting from inelastic pn-interactions in a nuclear emulsion at an energy of 9 Bev. Zhur. eksp.i teor.fiz. 41 no.4:993-1002 O '61. (MIRA 14:10)

1. Institut yadernoy fiziki AN Kazakhskoy SSR.
(Photography, Particle track) (Protons) (Neutrons)

39305
S/707/62/005/000/001/011
D290/D308

24.6709

AUTHORS: Botvin, V.A., Takibayev, Zh.S., Chasnikov, I.Ya., Boos, E.G. and Pavlova, N.P.

TITLE: Analysis of some inelastic p-n-interactions at 9 Bev

SOURCE: Akad iya nauk Kazakhskoy SSR. Institut yadernoy fiziki Trudy. v. 5, Alma-Ata, 1962. Fizika chastits vysokikh energiy. Struktura yadra, 3-15

TEXT: The authors studied in detail the characteristics of the secondary particles from three-ray p-n-interactions produced by 9 Bev protons; the work was carried out because of appreciable differences in the results for such reactions given in the literature. Nuclear emulsions type НИКФИ-Р (NIKFI-R) were used. The aggregate angular distribution of π -mesons and protons is symmetrical in the center-of-mass system (CMS); the individual angular distribution for π -mesons and protons are asymmetric in CMS, protons predominating in the back direction and π -mesons in the forward direction. The energy spectrum of protons in CMS is harder than that predicted by

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S/707/62/005/000/001/014
D290/D308

Analysis of some inelastic ...

the statistical theory with allowance for isobars. The energy spectrum of π -mesons in CMS at high energies approximates to a Heisenberg spectrum, except that the maximum in the theoretical spectrum occurs at an appreciably lower energy; the spectrum predicted by the statistical theory with allowance for isobars is harder for all energies. The measured inelasticity coefficients show that for protons and π -mesons half the energy concerned in meson production is carried away by π^0 -mesons; this indicates that equal numbers of π^0 - and $\pi^\pm$ -mesons are produced provided that the energy spectra of neutral and charged mesons are identical. The average energy carried away per charged π -meson or proton does not depend on the type of reaction. The distribution of the true inelasticity coefficient does not show a sharply defined maximum; there are indications of the presence of two maxima but this is only a tentative conclusion. There are 13 figures and 4 tables.

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39306
S/707/62/005/000/002/014
D290/D308

24.6700

AUTHORS: Boos, E.G., Takibayev, Zh.S., Botvin, V.A., Chasnikov, I.Ya. and Pavlova, N.P.

TITLE: Analysis of p-nucleon interactions produced at an energy of 10^{10} eV in nuclear photoemulsion

SOURCE: Akademiya nauk Kazakhskoy SSR. Institut yadernoy fiziki. Trudy. v. 5. Alma-Ata, 1962. Fizika chastits vysokikh energiy. Struktura yadra, 16-32

TEXT: The authors have developed a new method of finding the angular and energy characteristics of nuclear disintegrations that is based on the calculation of the distribution of transverse momentum of secondary particles; for all identifiable particles the method gives closer agreement with experiment than other methods of approximation. The method permits an estimate of the dependence of the following characteristics on observed multiplicity: a) the degree of anisotropy of the angular distribution of shower particles in the center-of-mass system (CMS) for a Lorentz-factor (γ_c) of 2.4 decreases with increasing multiplicity; for 3- and 8-ray stars

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Analysis of p-nucleon interactions ...

there is an appreciable asymmetry in forward and backward emission of particles, b) in the region of average multiplicity (between 3 and 8) the best agreement with the expected value $\gamma_c = 2.4$ is shown by a quantity found by a kinematic method which assumes a uniform distribution of the transverse momenta of shower particles; the assumption $\beta_c/\beta_i' = 1$ (β_c is the velocity of the center-of-mass with respect to laboratory coordinates (LC), β_i' is the velocity of the particles in CMS) leads to a systematic overestimate of the energy by a factor of two. Regardless of the method of estimation, γ_c for 3-ray stars is too high, while γ_c for 8-ray stars is too low; therefore the Lorentz-factor of the system where angular symmetry of the secondary particles is assumed, will decrease as the multiplicity increases, c) as the multiplicity increases, the fraction of the energy carried off by charged meson increases both in LC and CMS, but the fraction of the energy per meson is almost unchanged (about 17%); therefore $n_{\pi^0}/n_{\pi^\pm} < 0.5$ for 7- and 8-ray stars provided that the energy spectra $n_{\pi^0}/n_{\pi^\pm}$ of π^0 and $\pi^\pm$ -mesons are identical. The mass of the target also increases with the multi-

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plicity, but it does not exceed the mass of nucleon; this confirms the criteria for the selection of n-n-interactions. The authors acknowledge the help of L.I. Mikhaylova and O.V. Gunenkova. There are 8 figures and 4 tables.

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S/056/62/042/001/001/048
B125/B108

AUTHORS: Boos, E. G., Botvin, V. A., Pavlova, N. P., Takibayev, Zh. S., Chasnikov, I. Ya.

TITLE: Analysis of 9-Bev proton-nucleon interaction in a nuclear emulsion

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 42, no. 1, 1962, 3 - 11

TEXT: A constant distribution of transverse momenta is assumed for the suggested method of studying the dependence of angular and energy characteristics of proton-nucleon interaction on multiplicity. All showers observed in a P (R) type НИКФИ (NIKFI) emulsion irradiated with 9-Bev protons from the proton synchrotron of the OIYaI were classified according to their multiplicity. The transverse momenta of the secondary particles are constant over a wide range of primary particle energies and depend only slightly on multiplicity and target mass. The experimental distribution of $p_\perp$ is satisfactorily approximated by $\Delta N/N\Delta p_\perp = cp_\perp \exp(-p_\perp^2/b^2)$ (1). Owing

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Analysis of 9-Bev proton-nucleon...

to the law of conservation of momentum, the mean value of $p_\perp$ increases with increasing θ in the case of small angles. Results of this method show better agreement with the experiment than earlier methods. The angular distribution of shower particles becomes more isotropic (in the c.m.s) with increasing multiplicity. The particle emission of the 3 and 8-pronged stars forward and backward is not symmetric. The best agreement with the expected Lorentz factor ($\gamma_c = 2.4$) is attained for mean multiplicities ($3 < n_s < 8$). The Lorentz factor tends to a decrease with increasing multiplicity. The portion of energy imparted to charged mesons increases with multiplicity in both the laboratory and center-of-mass systems. Hence, $n(\pi^0)/n(\pi^\pm) < 0.5$ for 7 or 8-pronged stars with equal energy spectra of π^0 and $\pi^\pm$ mesons. The estimable mass of the target particles increases with multiplicity, but does not exceed the nucleon mass estimated by N. G. Birger and Yu. A. Smorodin (ZhETF, 36, 1159, 1959). This justifies the criteria of selecting nucleon-nucleon interactions. The coworkers of the OIYaI are thanked for discussions, I. M. Gramenitskiy and M. I. Podgoretskiy for supplying their preprint on the angular distribution of particles in 8-pronged stars. There are 7 figures, 1 table, and 15 references: 11 Soviet and 4 non-Soviet.

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Analysis of 9-Bev proton-nucleon...

The reference to the English-language publication reads as follows: P. L. Jain, E. Lohrmann, M. W. Teucher. Phys. Rev., 115, 643, 1959.

ASSOCIATION: Institut yadernoy fiziki Akademii nauk Kazakhskoy SSR (Institute of Nuclear Physics of the Academy of Sciences Kazakhskaya SSR)

SUBMITTED: January 30, 1961

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Table. Observed events.

Legend: (1) Type of star, (2) number of prongs, (3) data obtained at the Laboratoriya vysokikh energiy Instituta yadernoy fiziki Akademii nauk Kazakhskoy SSR (Laboratory of High Energies of the Institute of Nuclear Physics of the Academy of Sciences Kazakhskaya SSR) and at the Laboratoriya vysokikh energiy Ob"yedinennogo instituta yadernykh issledovaniy (Laboratory of High Energies of the Joint Institute of Nuclear Research).

Table

(1) Типы звезд	N	ϑ_0	ϑ_r	$A(\beta_c/\beta'=1)$	A	$\frac{K^{\pm}}{n_s-1.25}$	$\frac{m_s}{\mu_\pi}$
3-лучевые (2)	110	$11°07'^{+2°02'}_{-1°}$	13°16'	+0,36±0,08	+0,04±0,08	0,21	≥1,6
4-лучевые (2)	53	$15°30'^{+3°}_{-2°30'}$	16°29'	+0,26±0,08	−0,08±0,10	0,16	≥1,9
5-лучевые (2)	19	$16°^{+3°12'}_{-1°}$	17°02'	+0,24±0,14	−0,04±0,14	0,13	≥3,0
6-лучевые (2)	23	$18°36'^{+2°}_{-2°}$	17°07'	+0,24±0,12	−0,18±0,12	0,17	≥6,0
7-лучевые (2)	6	$18°24'^{+3°}_{-5°}$	18°15'	−0,04±0,22	−0,20±0,22	0,16	≥5,8
8-лучевые (2)	7	$27°24'^{+3°36'}_{-3°24'}$	25°	−0,20±0,17	−0,36±0,17	0,16	≥6,2
8-лучевые* (3)	13	$26°^{+5°30'}_{-4°00'}$	26°27'	−0,12±0,07	−0,30±0,07	0,17	≥5,6

Card 4/4

E. G. BOOS, V. V. VISKOV, L. I. DORMAN, Ye. V. KOLOMEYETS, Zh. S. TAKIBAYEV

The calculations of the integral multiplicity for Mu-meson and nucleon component production duet to the different energies of primaries obtained at the top of the atmosphere with different zenith angles.

report submitted for the 8th Intl. Conf. on Cosmic Rays (IUPAP), Jaipur India, 2-14 Dec 1963

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206310009-0"

SHARAPOV, K.V.; TURSUNOV, K.A.; TAKIBAYEV, Zh.S.; BOOS, E.G.

Multiple scattering of 19.8 Bev./c protons in a nuclear emulsion. Izv. AN Kazakh. SSR. Ser. fiz.-mat. nauk no. 2:94-101 '63. (MIRA 17:6)

BOOS, E.G.; GRIGOR'YEVA, G.Ya.

Criteria for particle selection in p-N-interaction. Trudy Inst. iad. fiz. AN Kazakh. SSR 6:140-143 '63. (MIRA 16:10)

TAKIBAYEV, Zh.S.; BOOS, E.G.; PAVLOVA, N.P.

Distribution of transverse pulses of particles in nucleon interactions. Trudy Inst. iad. fiz. AN Kazakh. SSR 6:90-93 '63.
(MIRA 16:10)

ACCESSION NR: AP4018368 S/0120/64/000/001/0076/0081

AUTHOR: Boos, E. G.; Pavlova, N. P.; Volkova, O. I.; Gunenkova, O. V.; Zaytsev, K. G.; Kholmetskaya, A. V.

TITLE: Methods of measuring ionization losses of relativistic particles in a nuclear emulsion

SOURCE: Pribory* i tekhnika eksperimenta, no. 1, 1964, 76-81

TOPIC TAGS: ionization loss, relativistic particle, relativistic particle ionization loss, nuclear emulsion, Ilford G-5 emulsion, emulsion development, emulsion development irregularity

ABSTRACT: Irregularities of development of Ilford G-5 nuclear emulsion were studied; methods of eliminating them are suggested. A stack of 40 G-5 films, 600-micron thick, 12x20 cm was irradiated (in CERN) by a 91.8-Gev/s-mean-impulse proton beam. To find the irregularity of development of the emulsion films, the density of blobs on the relativistic-particle tracks was investigated both in the plane parallel to the emulsion and in depth. The effects of the micro-

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ACCESSION NR: AP4018368

scope field-of-view illumination, experimenters' characteristics, and the track immersion angle upon the accuracy of measurements were studied. It was proven that a desirable accuracy (2% or better) in determining ionization losses with immersion angles up to 10° is attainable. The technique of "joining" tracks in adjacent emulsion layers is discussed. "The authors wish to thank Zh. S. Takibayev and I. Ya. Chasnikov for a useful discussion of this project, and the workers of the High-Energy-Particle Laboratory, A. A. Alpy*sbayeva, Ts. Ya. Kagasova, D. I. Yermilova, F. N. Trushlyakov, T. T. Temiraliyev and G. A. Grigor'yeva, for their help in carrying out this project." Orig. art. has: 3 figures and 3 tables.

ASSOCIATION: Institut yadernoy fiziki AN KazSSR (Institute of Nuclear Physics, AN KazSSR)

SUBMITTED: 11Jan63 DATE ACQ: 18Mar64 ENCL: 00

SUB CODE: NS NO REF SOV: 000 OTHER: 007

Card 2/2

L 22173-65 EWT(m) SSD/AFWL/SSD(c)/DIAAP

ACCESSION NR: AP5001823 S/0056/64/047/006/2041/2050

AUTHORS: Boos, E. G.; Pavlova, N. P.; Takibayev, Zh. S.; Temirali-yev, T.; Tursunov, R. A.

TITLE: Investigation of the interaction of 19.8-GeV/c protons with nucleons in emulsion nuclei

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 47, no. 6, 1964, 2041-2050

TOPIC TAGS: proton nucleon interaction, proton scattering, emulsion, proton proton interaction, proton neutron interaction

ABSTRACT: The investigation was made with a stack of 600 μ Ilford G-5 emulsions measuring 12 x 20 cm, irradiated in the CERN proton synchrotron. Scanning was along the tracks of the primary particles in an MBI-9 microscope with a magnification of 900x. The criteria used to select interactions in free and quasi-free nucleons

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are described. Altogether 7,960 events were detected in a total primary track length of 2,927 meters (corresponding to a mean free path 36.8 ± 0.4 cm). From these, 1,035 elastic p-N interactions were selected. The distribution of the p-p events with respect to the number of prongs is in agreement with hydrogen bubble chamber data. The mean number of charged secondary particles from p-p and p-n interactions are 4.3 ± 0.2 and 4.5 ± 0.2, respectively. Showers with asymmetric emission of charged particles in the c.m.s. were also investigated. The distribution of the asymmetry of the individual interactions can be explained by assuming that the shower particles are deflected from symmetric emission in random fashion. The dependence of the multiplicity on the type of target nucleus is analyzed, and the experimental data are compared with the predictions of various theoretical mechanisms for the interaction between the nucleons and nuclei. It is shown that the best agreement is obtained with the cascade model calculations performed at OIYaI. "The authors thank the members of the High Energy Labora-

L 22173-65

ACCESSION NR: AP5001823

5

tory of IYaF AN KazSSR, M. G. Antonova, O. V. Guvenkova, L. Ya. Kogasova and V. L. Pervuchina for experimental data reduction, and the emulsion committee of CERN for supplying the pellicle stack." Orig. art. has: 3 figures, 4 formulas, and 9 tables.

ASSOCIATION: Institut yadernoy fiziki Akademii nauk Kazakhskoy SSR (Institute of Nuclear Physics, Academy of Sciences Kazakh SSR)

SUBMITTED: 04May64 ENCL: 00

SUB CODE: NP NR REF SOV: 012 OTHER: 014

Card 3/3

BOOS, E.G.; DOVZHENKO, V.A.; VINITSKIY, A.Kh.; GAKELYAN, Zh.S.; CHASNIKOV, I.Ya.

Inelastic interactions between protons, π-mesons, and nucleons in photographic emulsions in the 7 - 20 Bev. energy range. Izv. AN SSSR. Ser. fiz. 28 no.11:1770-1772 N '64. (MIRA 17:12)

1. Institut yadernoy fiziki AN KazSSR.

L 52195-65 EWG(j)/EWT(l)/EWG(v)/FCC/EEC-4/EEC(t)/T/EWA(h)/EWT(m) Po-4/Pe-5/Pq-4/
Pae-2/Peb/Pi-4 IJP(c) GM

ACCESSION NR: AP5017046 UR/0048/64/028/012/2022/2025

AUTHOR: Boos, E. G.; Viskov, V. V.; Dorman, L. I.; Kolomeyets, Ye. V.; Takibayev, Zh. S.

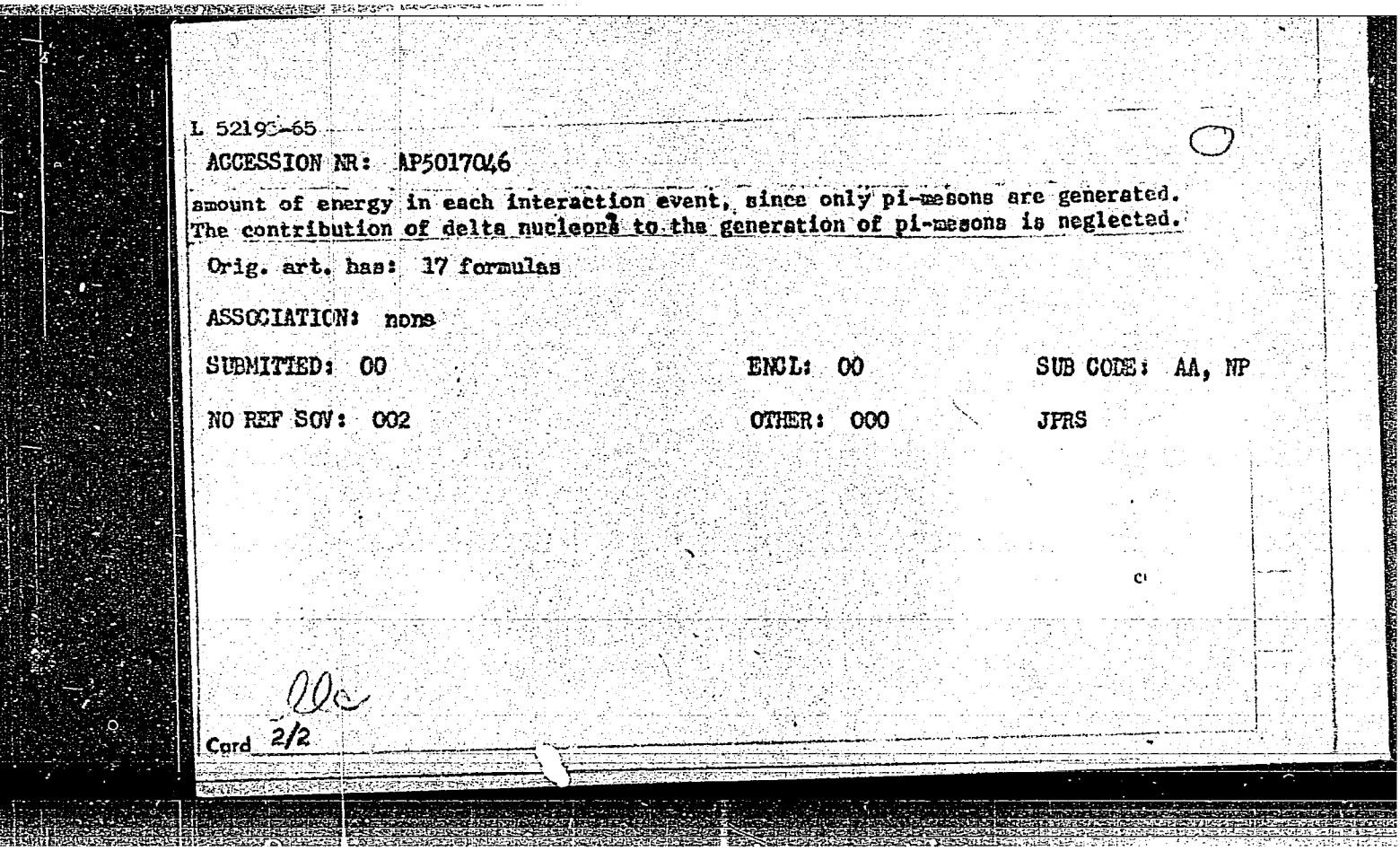
TITLE: Bonding coefficients for various cosmic ray components / Report of the All-Union Conference for the Physics of Cosmic Rays, held in Moscow, 4-10 October, 1963 /

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 28, no. 12, 1964, 2022-2025

TOPIC TAGS: cosmic ray, particle interaction, particle motion, astrophysics

ABSTRACT: Bonding coefficients which are used to study variations in cosmic rays are computed on the basis of the character of an elementary event of the interaction of a primary nucleon with nuclei of atmospheric atoms in which the spatial distribution of a nuclear cascade in the atmosphere is taken into account. This problem was solved earlier in the one-dimensional approximation for a vertical flow of primary particles. In this article the angular spread of particles is considered. The bonding coefficients are derived for the mu-meson component. It is assumed that a primary particle loses the same

Card 1/2



L 52193-65

ACCESSION NR: AP5017046

amount of energy in each interaction event, since only pi-mesons are generated. The contribution of delta nucleons to the generation of pi-mesons is neglected.

Orig. art. has: 17 formulas

ASSOCIATION: none

SUBMITTED: 00	ENCL: 00	SUB CODE: AA, NP
NO REF SOV: 002	OTHER: 000	JPRS

Card 2/2

BOOS, E.G.; PAVLOVA, N.P.; TAKIBAYEV, Zh.S.; TEMIRALIYEV, T.; TURSUNOV, R.A.

Interaction of 19.8 Gev./c protons with nucleons and emulsion nuclei. Zhur.eksp. i teor.fiz. 47 no.6:2041-2050 D '64.
(MIRA 18:2)

1. Institut yadernoy fiziki AN Kazakhskoy SSR.

BOOS, E.G.; VINITSKIY, A.Kh.; TAKIBAYEV, Zh.S.

Dependence of the transverse momentum of π-mesons on the angle of emission. IAd. fiz. 1 no.1:148-151 Ja '65. (MIRA 18:7)

1. Institut yadernoy fiziki AN KazSSR.

L 22105-66 EWT(m)/T

ACC NR: AP6012937 SOURCE CODE: UR/0120/65/000/002/0063/0064

AUTHOR: Bnos, E. G.; Pavlova, N. P.; Takibayev, Zh. S.; Tursunov, R. A.

ORG: Institute of Nuclear Physics, AN KazSSR (Institut yadernoy fiziki AN KazSSR)

TITLE: Determination of the nature of secondary particles by the photo-emulsion method in the area of high energies

SOURCE: Pribory i tekhnika eksperimenta, no. 2, 1965, 63-64

TOPIC TAGS: pi meson, proton, K meson, meson, high energy particle

ABSTRACT: In order to determine the nature of secondary particles in the area of high energies, the author analyzed secondary particles from three-ray p-n interactions formed by protons with an impulse of 19.8 gev. The traces of the incident protons provided independent confirmation of the correctness of the method used for identification of the secondary particles. The relations between the number of p-n mesons, pi mesons, K-mesons, and protons in various areas of $p\beta c$ were found: $2.5 < p\beta c < 5$ gev - $N_\pi : (N_k + N_p) = 90:10$; $5 \text{ gev} < p\beta c < 20$ gev -- $N_\pi : N_k : N_p = 47:10:43$.

It is shown that the pi-mesons can be separated from the heavier particles in the area of $p\beta c$ between 2.5 and 5 gev and that in the area between 5 and 20 gev the portion of K-mesons can also be evaluated. The number of particles of various types is evaluated as follows for three-ray p-n interactions on the basis of preliminary data:

Card 1/2

UDC: 539.1.073.7

L 22105-66
ACC NR: AP6012937

2.5 gev $< p\beta c <$ 5 gev $N_\pi : (N_k + N_p) = 90:10$

5 gev $< p\beta c <$ 20 gev $N_\pi : N_k : N_p = 47:10:43$

2.5 gev $< p\beta c <$ 20 gev $N_\pi : N_k : N_p = 62:6:32$

These relations indicate the considerable reduction of pi-mesons with increasing energy and the corresponding increase in K-mesons and protons. The authors thank the workers of the Department of High energy, IYaF, AN KazSSR, for participating in processing and discussing the experiments. Further thanks is made to the Emulsion Committee, TsYeRN for making the emulsion stacks available. Orig. art. has: 2 figures. [JPRS]

SUB CODE: 20 / SUBM DATE: 17Feb64 / ORIG REF: 006 / OTH REF: 001

Card 2/2 BLG

ACC NR: AP6014809 SOURCE CODE: UR/0367/65/001/001/0148/0151

AUTHOR: Boos, E. G.; Vinitskiy, A. Kh.--Vinitsky, A.; Takibayev, Zh. S.--Takibaev, J.

ORG: Institute of Nuclear Physics, AN KazSSR (Institut yadernoy fiziki AN KazSSR) 16 B

TITLE: Investigation of dependence of lateral momentum of pi-mesons on escape angle 19

SOURCE: Yadernaya fizika, v. 1, no. 1, 1965, 148-151

TOPIC TAGS: pi meson, particle interaction

ABSTRACT: The distribution of the lateral momentum of pi-mesons as a function of their escape angle is investigated. Use is made of 1536 pi-mesons produced in pi N-interactions by an energy of 7.5 BEV. It is shown that the existing dependence of $P_\perp$ on the escape angle can be explained by the influence of the energy-momentum conservation law. The authors study the conditions under which the assumption $P_\perp$ = constant can be used to find the kinematic properties of the secondary particles. The authors thank O. V. Gunenkov for his assistance with the calculations. Orig. art. has: 2 figures and 4 formulas. [Based on authors' Eng. abst.] [JPRS]

SUB CODE: 20 / SUBM DATE: 01Jul64 / ORIG REF: 007 / OTH REF: 002

Card 1/1 ULR

ACC NR: AP7009590 SOURCE CODE: UR/0020/66/170/005/1041/1043

AUTHOR: Boos, E. G. (Academician AN KazSSR); Takibayev, Zh. S.; Tursunov, R. A.

ORG: Institute of Nuclear Physics, AN KazSSR (Institut yadernoy fiziki AN KazSSR)

"Investigation of Diffraction Generation of π-Mesons by Protons with an Energy of 20 Gev""

Moscow, Doklady Akademii Nauk SSSR, Vol 170, No 5, 11 Oct 66, pp 1041-1043

Abstract: Coherent generation of π-mesons in three-ray events arising in an Ilford G-5 emulsion under the action of protons with an impulse of 1913 Gev/c was subjected to further study (cf. E. G. Boos, N. P. Pavlova, and R. A. Tursunov, Preprint P-2623, Joint Institute of Nuclear Research, Dubna, 1966). Secondary particles in 179 three-ray interactions over a length of 2927 m were identified. The distribution of the events with respect to angular criteria δ was determined. The distribution of 30 events with $\delta < 0.6$ with respect to the square of the four-dimensional impulse q^2 was 0.14 ± 0.03 $(Gev/c)^2$ for the 30 events and 0.15 ± 0.04 $(Gev/c)^2$ for 13 events among them for which reliable identification of the secondary particles was made. The distribution with respect to the transverse impulse $P_\perp$ carried away by the $(p\pi\pi)$ system was determined. The average value of $P_\perp$ was 0.13 ± 0.03 gev/c (0.17 ± 0.05

Card 1/2

UDC: 539.12 + 539.107.37

0930 11.27

Gev/c for 13 events), which was considerably smaller than the value of 0.30 ± 0.03 Gev/c found for three-ray pn interactions. Determination of the distribution of the three-particle system with respect to the effective mass M indicated that the average value of M was 1.61 ± 0.30 Gev for all events and 1.63 ± 0.45 for 13 events. The statistical reliability of the data obtained was insufficient to permit a definite conclusion as to whether the formation of π^+-mesons was of the resonance type. The authors thank O. V. Gunenkovaya, K. G. Zaytsev, T. I. Mukhordovaya, and A. V. Kholmetskovaya, who took part in the measurements and processing of the data, and also A. Kh. Vinitskoy for taking part in the discussion of the results. Orig. art. has: 4 figures and 2 formulas. [JPRS: 40,050]

TOPIC TAGS: pi meson, proton

SUB CODE: 20

BOOS, G.V.

Photoperiodical reaction of cucumber varieties as related to their origin. Mat. Fen. kom. Geog. ob-va SSSR no.1:66-70 '62. (MIRA 17:3)

BOOS, G.V., kand. sel'skokhoz. nauk

Effectiveness of the intravarietal and intervarietal crossing of cucumbers and tomatoes in greenhouses. Agrobiologia 5:708-713 S-O '64. (MIRA 17:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut rasteniyevodstva, Leningrad.

L 43864-65 EWT(1)/EPA(s)-2/EPA(w)-2/EEC(t)/EWA(m)-2 Pab-10

ACCESSION NR: AP5006447 S/0051/65/018/003/0529/0530

AUTHOR: Bopp, G. A. 23 D

TITLE: Estimate of the temperature of a pulsed discharge channel in a liquid

SOURCE: Optika i spektroskopiya, v. 18, no. 3, 1965, 529-530

TOPIC TAGS: discharge channel, pulsed discharge, 21 discharge channel temperature

ABSTRACT: The author investigated the spectral density of the energy brightness of a channel of a condensed spark in kerosene, distilled water, and turpentine, by taking oscillograms of the photocurrents. The measurements covered the wavelength range 4500 - 6500 Å. The absolute value of the spectral density was determined against a high-pressure xenon-lamp standard, the optical distribution of which was known. The absolute temperatures of the discharge channels in different liquids were determined from the measured values of the spectral density of the energy brightness. The temperatures ranged from 15000 to 25000K, depending on the electric discharge conditions. These agree well with other data. The results indicate that the channel temperature increases with increasing voltage until

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L 43864-65

ACCESSION NR: AP5006447

spectral saturation sets in for the wavelength at which the measurement is made. A slight decrease in the channel temperature is observed with increasing wavelength, but its value does not go beyond the limits of error. The results are tabulated in the Enclosure. Orig. art. has: 2 tables.

ASSOCIATION: None

SUBMITTED: 25Apr64 ENCL: 01 SUB CODE: OP, TD

NR REF SOV: 003 OTHER: 002

Card 2/3

L 43864-65

ACCESSION NR: AP5006447

ENCLOSURE: 01

Pulsed-discharge channel temperatures in liquids

U, kV	Liquid: kerosene, T, °K	Liquid: dist. H_2O, T, °K
9	20100	—
10	—	15100
11	21300	—
12	22200	15800
14	22800	17800
16	23000	18800
18	23090	18900
20	—	19200

l, Å	Liquid: turpentine, U, kV = 19, T°, K	Liquid: dist. H_2O, U, kV = 22, T°, K
5000	24900	20200
5500	24800	19200
6000	24700	19000
6500	24300	19000

Card 3/3

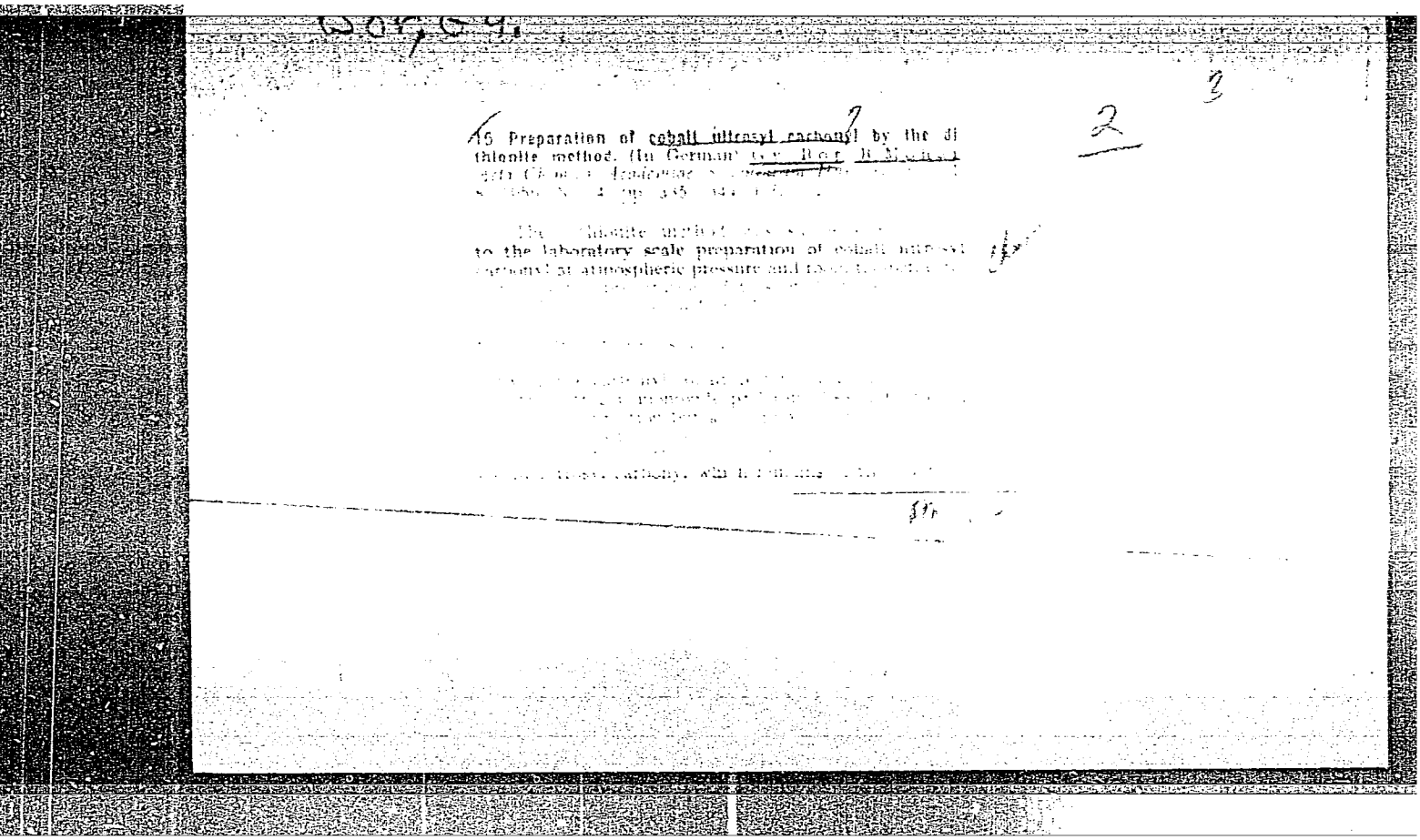
BOR, A.

Voronezh youth group... Prof.-tekh.obr. 22 no.8:27 Ag '65.
(MIRA 18:12)

BOR, Gy.

"Vanadium Content of the Crude Oil of Nagylengyel", P. 167. (MAGYAR KEMIKUSOK LAPJA, Vol. 9, No. 6, June 1954, Budapest, Hungary)

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 4, No. 1, Jan. 1955, Uncl.



15 Preparation of cobalt nitrosyl carbonyl by the di
thionite method. (In German)

to the laboratory scale preparation of cobalt nitrosyl

BOR, GYORGY

HUNGARY/Inorganic Chemistry - Complex Compounds. C.

Abs Jour : Ref Zhur --Khimiya, No 11, 1958, 35671

Author : Bor Gyorgy, Mohai Bela
Inst :
Title : Chemical Data on Cobalt Carbonyl Complexes. II Reaction of a $(Co(CO)_4)$-ION with Nitric Oxide.

Orig Pub : Magyar Tud. Akad. Kem. Tud. Osxt. Kozl., 1957, 8, No 2-3, 299-310

Abstract : The reaction of a $[Co(CO)_4]$-(I)ion in a pure Na $[Co(CO)_4]$ with NO solution has been studied. The volatile $Co(CO)_3NO$ (II) has been obtained as a result. It has been demonstrated, that NO participates not only in the complex-formation but also in the oxidation process, and that the reaction takes place according to the following formula: $2[Co(CO)_4] + 3\ NO + H_2O = 2\ Co(CO)_3NO + 2\ CO +$ $2OH^- + 1/2\ N_2$. The NO discharge in this reaction

Card 1/2

HUNGARY/Inorganic Chemistry - Complex Compounds. C.

Abs Jour : Ref Zhur - Khimiya, No 11, 1958, 35671

exceeds the stoichiometric one. A complete oxidation of a certain portion of I takes place, as well as the decomposition of II in the presence of NO in an alkali medium. According to the method applied in the investigation the yield of the obtained II amounts to 75-80%. Part I, Zhur-Khimiya, 1956, 71396.

Card 2/2

Card 1/2

ACTA CHIMICA
Academiae Scientiarum Hungaricae
Vol 12, Nr 1, 1957

THE CHEMISTRY OF THE CARBONYL COMPLEXES OF COBALT. II.

Reaction of the Carbonylo-Cobaltate(-I)-Anion with Nitrogen Oxide

GY. BOR and P. MICHAI

(Department of General and Inorganic Chemistry, University for the Chemical Industry, Veszprém)

Received January 12, 1956

Summary

The reaction of the carbonylo-cobaltate(-I)-anion with nitrogen oxide yielding volatile cobalt nitrosyl carbonyl $Co(CO)_3NO$ has been investigated both by static and dynamic methods and proved that nitrogen oxide participates in the reaction not only as a ligand forming a component in the sense of the SIDGWICK equation

$$[Co(CO)_4]^- + NO^+ = Co(CO)_3\overset{(+)}{N}O + CO$$

but also as an agent oxidising the complex cobaltate(-I) into a neutral carbonyl complex containing an unloaded cobalt atom.

Card 2/2

BOR, GY. and MOHAI, B.

The Chemistry of the Carbonyl Complexes of Cobalt, II. Reaction of the Carbonylo-Cobaltate (-I-) Anion with Nitrogen Oxide

$$2\,[Co(CO)_4]^- + 3\,NO + H_2O = 2\,Co(CO)_3NO + 2\,CO + 2\,OH^- + 0.5\,N_2$$

The fact that the consumption of nitrogen oxide is higher than the stoichiometric one, is attributed to inevitable side reactions in the course of which a partial oxidation by nitrogen oxide takes place:

$$2\,[Co(CO)_4]^- + 11\,NO + 10\,OH^- = 2\,Co^{2+} + 8\,CO_3^{2-} + 5\,H_2O + 5.5\,N_2$$

The decomposition of the formed cobaltnitrosyl carbonyl by nitrogen oxide in alkaline solution is demonstrated:

$$2\,Co(CO)_3NO + 6\,NO + 8\,OH^- = 2\,Co^{2+} + 6\,CO_3^{2-} + 4\,H_2O + 4\,N_2$$

When pure solutions of $Na[Co(CO)_4]$ are used as initial substances, yields of 75—80% cobalt nitrosyl carbonyl may be attained, in contrast to those of 50% by methods hitherto known.

27

Vapor pressure and heat of vaporization of cobalt nitrosyl carbonyl. B. Mohai and G. Bor (Chem. Univ., Veszprem, Hung.). *Naturwissenschaften* 44, 325–6(1957).—The literature data on vapor pressure, v.p., and heat of vaporization, L, of $Co(CO)_3NO$ are contradictory; therefore exact measurements were made in an isoteniscope. The equation $\log p = -1787/T + 7.922$ agrees well with the results between 5.0 and 65°. The extrapolated b.p. at 760 mm. Hg is 77.8°; From the data at 15 and 60° L is 8.18 kcal./mol. Francis J. Schmidt

4
1

Distr: 4E4j

BOR, GYORGY

Distr: 4E2c(m)

Ammonium polyvanadates. Gyorgy Bor and Dezso Sineger (Univ. Chem. Ind., Veszprém, Hung.). *Veszprémi Vegyipari Egyetem Közleményei* 2, 177–84(1958).—The pptn. of NH_4 polyvanadates from strongly acidified (H_2SO_4, 1.8–3.5 pH) quinquevalent vanadyl sulfate solns. with NH_3 and the properties of the pptd. compds. were studied. The initial $(VO_2)_2SO_4$ solns. were prepd. by dissolving V_2O_5 in 10% H_2SO_4; they had a 0.148*M* V_2O_5 concn. Max. pptn. was observed at 2.4 pH; this is the isoelec. point. At a pH of 2.4, a max. pptn. yield of 94.8% took place without mech. agitation or evapg. Both the NH_3 and the V content of the pptd. compds. increased with an increasing pptn. yield. The compn. of the ppt. at pH 2.4 was $(NH_4)_2H_2V_6O_{17}.H_2O$; it had a d. of 2.8–2.9 a water soly. of 0.15 g./l. at 25°, and a decompn. temp. of 60–70°. Ammonia is evolved in the range 240–330°. The compn. of the ppts. is different at other pH values. All ultimately transform into pure V_2O_5 upon heating. G. J. Ennyei

BOR, Gyorgy, dr.

Infrared spectrographic analysis of metal carbony. Veszprem vegyip egy kozl 5 no.4:339-344 '61

1. Magyar Asvanyolaj es Foldgaz Kiserleti Intezet, Veszprem.

BOR, I.; PADOVCOVA-LEDEREROVA, H.

General review of congenital cardiac malformations in the II Children's Clinic of prof. Brdlik. Pediat. listy 6 no.1:19-23 Jan-Feb 51. (CIML 20:7)

1. Of the Second Children's Clinic of Charles University in Prague (Head--Prof. Jiri Brdlik, M.D.).

HOMOLKA, J.; KRUPICKA, V.; BOR, I.

Photometric determination of blood oxygen. Pediat. listy 6 no.2: 112-114 Mar-Apr 1951. (CLML 20:9)

1. Of the First Children's Clinic in Prague (Head--Prof. Jos. Svejcar, M.D.) and of the Second Children's Clinic in Prague (Head--Prof. J. Brdlik, M.D.).

BOR, I.;SVATY, J.

Chorea minor at the Second Pediatrics Clinic of Prof. Brdlik; 14 years survey (1938-51). Prakt. lek., Praha 31 no.18:413-416 20 Sept 1952. (CLML 23:4)

1. Of the Second Pediatric Clinic (Head--Prof. Brdlik, M.D.), Prague.

BOR and FADOVCOVA. II. detske Klin., Karlovy Univ., Praha. Smernice pro lecbu akutniho reumatismu Directions for the treatment of acute rheumatism Pediat. Listy 1953, 8/1 (46)

In prophylaxis, only penicillin is estimated to be of value. Sulphonamides are not mentioned. In rheumatic carditis, ACTH and cortisone are doubtful value, but the possible difference between first attacks and relapses is not mentioned.

Bloch - Amsterdam (XX, 6, 7)

SO: EXCERPTA MEDICA, Section VI, Vol. 8, #1, January 1954

BOR, I.

and PADAVCOVA, H.

"Our Experiences with Operations in Congenital Heart Failure." (Second Children's Clinic of Charles University in Prague).

SO: Ped. listy, Prague, Vol. 8 (1953), No. 3, pp. 132-134.

PADOVTSOVA, G.; GORAK, B.; BOR, I.; BRDLIK, professor, zaveduyushchiy,

Angiocardiography in congenital anomalies of the heart shape. Vop.pediat. 21 no.2:35-47 Mr-Ap '53. (MLRA 6:6)

1. Vtoraya detskaya klinika Prazhskogo universiteta.
(Diagnosis, Radioscopic) (Heart--Diagnosis) (Heart--Abnormities and deformities)

BOR, I.

"Anomalous Opening of the Lung Vein into the Hepatic Veins."

SO: Ped. listy, Prague, Vol. 3 (1953), No. 3, pp. 152-154.

BOR, I.

QT (QTc) wave in children with acute rheumatism. Cas. lek. cesk. 92 no. 2:49-50 9 Jan 1953. (CLML 24:1)

1. Of the Second Pediatric Clinic (Head--Prof. J. Brdlik, M.D.) of Charles University, Prague. 2. Electrocardiography.

BOP, I., JANOUSEK, S., TADOVCOVA, H.

"Oxymetric examination of congenital deformities of the heart. p. 200. (CASOPIS LEAKARU CESKYCH, Vol. 92, #8, Feb. 1953, Czechoslovakia)

SO: East European Monthly List of Russian Accessions, Vol. 2, #8 Library of Congress, August 1953, Uncl.

BOR, I.Dr.; PADOVCOVA, H.Dr.

Rheumatic pneumonia. Pediat. listy, Praha 9 no.5:264-265 Sept-Oct 54.

1. Z II detske kliniky Karlovy university v Praze. Prednosta: prof. dr. Josef Houstek

(PNEUMONIA, complications
rheum. in inf. & child, in Czech., statist.)
(RHEUMATISM, complications
pneumonia in inf. & child. in Czech., statist.)

1133. BOR I. II. Detské Klin. KU, Praha. *Kardiochirurgická konference. Cardiac surgery conference ČSL. PEDIAT. 1955, 10/3 (223-228)

In December 1954 a conference of workers in the field of congenital and acquired heart diseases was held in Prague. The first day 9 lectures were delivered on patent ductus arteriosus and 10 on cyanotic malformations of the heart. Up to this time 150 children with PDA and 70 children with cyanotic heart disease were operated. The results of surgery are comparable with the foreign centres. The techniques of Blalock, Potts and Brock were used in 4 different centres. The results obtained by the Blalock and Potts technique are superior to valvulotomy. On the second day stenosis of the mitral valve was discussed in 28 lectures. All together 400 adults were operated upon.

Bor - Prague (11, 6, 9*)

BOR, I., Dr

Cardio surgical conference. Cesk.pediat. 10 no.3:223-228 Apr 55.

1. Z II detske kliniky KU v Praze. Prednosta prof. MUDr Josef Houstek.

(HEART, surgery,
in Czech., conf.)

BOR, Imrikh

Results of surgical treatment of patent ductus arteriosus. Pediatriia 39 no.3:3-10 My-Je '56. (MLRA 9:9)

1. Iz 2-y detskoy kliniki pediatricheskogo fakul'teta Karlova universiteta v Prage (dir. - prof. Iozef Goushtek)
(DUCTUS ARTERIOSUS, PATENT, surg.
statist. of results in child.)

EXCERPTA MEDICA Sec 5 Vol 13/5 Gen. Path. May 60

1472. EVALUATION OF PULMONARY HYPERTENSION IN PATENT DUCTUS ARTERIOSUS FROM LUNG BIOPSY; CORRELATION WITH CLINICAL FINDINGS - Hodnocení plicní hypertenze u otevřené tepenné dučeje z biopsie plic a korelace s klinickými nálezy - Bor I. and Valach V. II. Detska Klin., Fak. Detskcho Lek.; Hlavuv I. Patol. Anat. Úst. Fak., Vseob. Lek., Praha - ACTA UNIV. CAROLINAE 1959, 4 (163-179) Tables 6

Biopsy examination of an excision from the lung was made in 65 children with patent ductus arteriosus, without regard to the presence or absence of pulmonary hypertension. In 50% either definite or indefinite structural vascular changes, characteristic of pulmonary hypertension, were found. A pressure of 50 mm. Hg cannot be considered to be the lower limit for pulmonary hypertension. At operation the surgeon can make an evaluation of the presence or absence of pulmonary hypertension in about 43% of cases. Histological changes in the pulmonary vessels occur most frequently when the patent ductus is wider than 10-12 mm. and longer than 10 mm. It is possible to assess the presence of pulmonary hypertension from the clinical symptomatology. There is a relationship between the measured height of the pulmonary hypertension and the structural changes in the pulmonary vessels.

(XVIII, 5, 7)

BOR, Imrich; SAMANEK, Milan

Pulmonary lesions in cardiopathies in children. Cesk.pediat. 15 no.8:725-733 Ag '60.

1. II. detska klinika KU v Praze, prednosta prof. MUDr J.Houstek
(LUNG DISEASES in inf. & child)
(HEART DISEASES in inf. & child)
(HEART DEFECTS CONGENITAL compl)

LESNY, I.; BOR, I.; VLACH, V.

Electroencephalographic changes in children with congenital heart defects. Effect of oxygen inhalation. Sborn.lek.63 no.2: 40-53 F '61.

1. Elektrobiologicke laboratore neurologicke kliniky fakulty vseobecneho lekarstvi, University Karlovy v Praze, prednosta akademik Kamil Henner; II. detska klinika pediatricke fakulty University Karlovy v Praze, prednosta prof.dr. J.Houstek.
(HEART DEFECTS CONGENITAL physiol)
(ELECTROENCEPHALOGRAPHY)
(OXYGEN)

KAFKA, Vaclav /reviewer/; BOR, I. /author/

SURNAME, Given Names

Country: Czechoslovakia

Academic Degrees: /not given/

Affiliation: /not given/

Source: Prague, Prakticky Lekar, Vol 41, No 14, 1961, p 656.

Data: "Open Ductus Arteriosus (Otevrena tepenna ducej)"

GPO 981643

SRBOVA, D., MUDr.; BOR, I., doc. MUDr.; BREZINA, Z., MUDr.; RINGEL, J., doc. MUDr.; SUDA, MUDr.; SUMBERA, J., doc. MUDr.

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(RHEUMATISM in inf & child) (HOSPITAL OUTPATIENT SERVICE)
(PEDIATRICS hosp & clin)

BRODSKY, Milan; DRAPKA, Miloslav; KABELKA, Miroslav; KUDRNOVA, Ludmila; BOR, Imrich; KRCILKOVA, Milada; DITTRICH, Jan; KUBAT, Karel

Prolonged perfusion in children at a normal temperature. (Conduction of operations for congenital cardiac defects). Rozhl. chir. 41 no.3: 167-;76 Mr '62.

1. Klinika detske chirurgie FDL KU v Praze, prednosta prof. DrSc. MUDr. V. Kafka II. detska klinika FDL KU v Praze, prednosta prof. DrSc. MUDr. J. Houstek IV. detska klinika FVL KU v Praze, prednosta prof. DrSc. MUDr. F. Blazek Nuerologicka klinika FVL KU v Praze, prednosta akademik K. Henner II. patologickanatomicky ustav FVL KU v Praze, prednosta prof. DrSc. MUDr. V. Jedlicka.
(HEART MECHANICAL) (HEART DEFECTS CONGENITAL surg)

BOR, I.

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BOR, Imrich

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1. II.detska klinika fakulty detskeho lekarstvi University Karlovy v Praze; prednosta: prof. MUDr. J. Houstek, DrSc.

BOR, Imrich; MASOPUST, Jaroslav

Congenital methemoglibinemia. Biochemical and clinical study. Acta Univ. Carol. [med.] (Praha) 10 no.1:75-85 '64.

1. II. detska klinika fakulty detskeho lekarstvi University Karlovy v Praze (prednosta: prof. MUDr. J.Houstek, DrSc) a Ustav vyzkumu vyvoje ditete fakulty detskeho lekarstvi University Karlovy v Praze (reditel: prof. MUDr. J. Houstek, Dr Sc.)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206310009-0"

ALEKSANDROV, S. V.; BOOS, G. V.

Vegetable Gardening

Effectiveness of growing vegetables in heated ground. Sad i og. No. 2, 1953.

Monthly List of Russian Accessions, Library of Congress, June 1953. UNCLASSIFIED.

2069. ELECTRICALLY HEATED FRAMES. Boos, G.V. (Sad i Ogorod (Horticulture, Moscow), Nov. 1953, 30; abstr. in Agric. Hortic. Engng Abstr., 1954, vol. 5, 33). The electrodes used for heating were made of corrugated metal strips, 120-130 cm long and 6-7 cm wide, which were placed into the soil to a depth of 16-18 cm and 80-100 cm apart. Satisfactory conditions were obtained by varying the supply voltage between 50 and 100 V according to weather conditions.

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SO: Knizhnaya Letopis', No 1, 1956

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Classification of cucumbers. Trudy po prikl. bot., gen. i sel. 32 no.3:80-86 '59. (MIRA 14:5)

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BOOS, Genrikh Viktorovich, st. nauchnyy sotr., kand. sel'khoz. nauk; MAL'CHIKOVA, V.K., red.; PRESNOVA, V.A., tekhn. red.

[Recent developments in growing vegetable seedlings] Novoe v vyrashchivanii rassady ovoshchnykh kul'tur. Lenizdat, 1963. 62.p. (MIRA 16:6)

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(Vegetable gardening)

Bootsma, G. A.

Separation factors for boron isotope exchange. Boron trifluoride complexes with tetrahydrofuran and triethylamine. S. V. Ribnikar and G. A. Bootsma (Inst. Nuclear Sci. "Boris Kidrich," Belgrade). *Bull. Inst. Nuclear Sci. "Boris Kidrich"* (Belgrade) 9, No. 177, 91–4(1959).—Isotopic fractionations of BF_3-tetrahydrofuran and BF_3-triethylamine were performed (*C.A.* 52, 11597*a*, 15208*g*). The gas phase was found to be enriched in B^{11}. The sepn. factors, $(\alpha)_M = 0$, were found to be 1.036 ± 0.002 (25°) for the tetrahydrofuran complex and 1.023 ± 0.001 (30°) for the triethylamine complex. When BF_3 was passed through a column of pumice stone the gas was found to be enriched in B^{11} by a factor of 1.00. When the column was impregnated with diphenyl ether the enrichment factor was about 1.03. I. L. Iunk

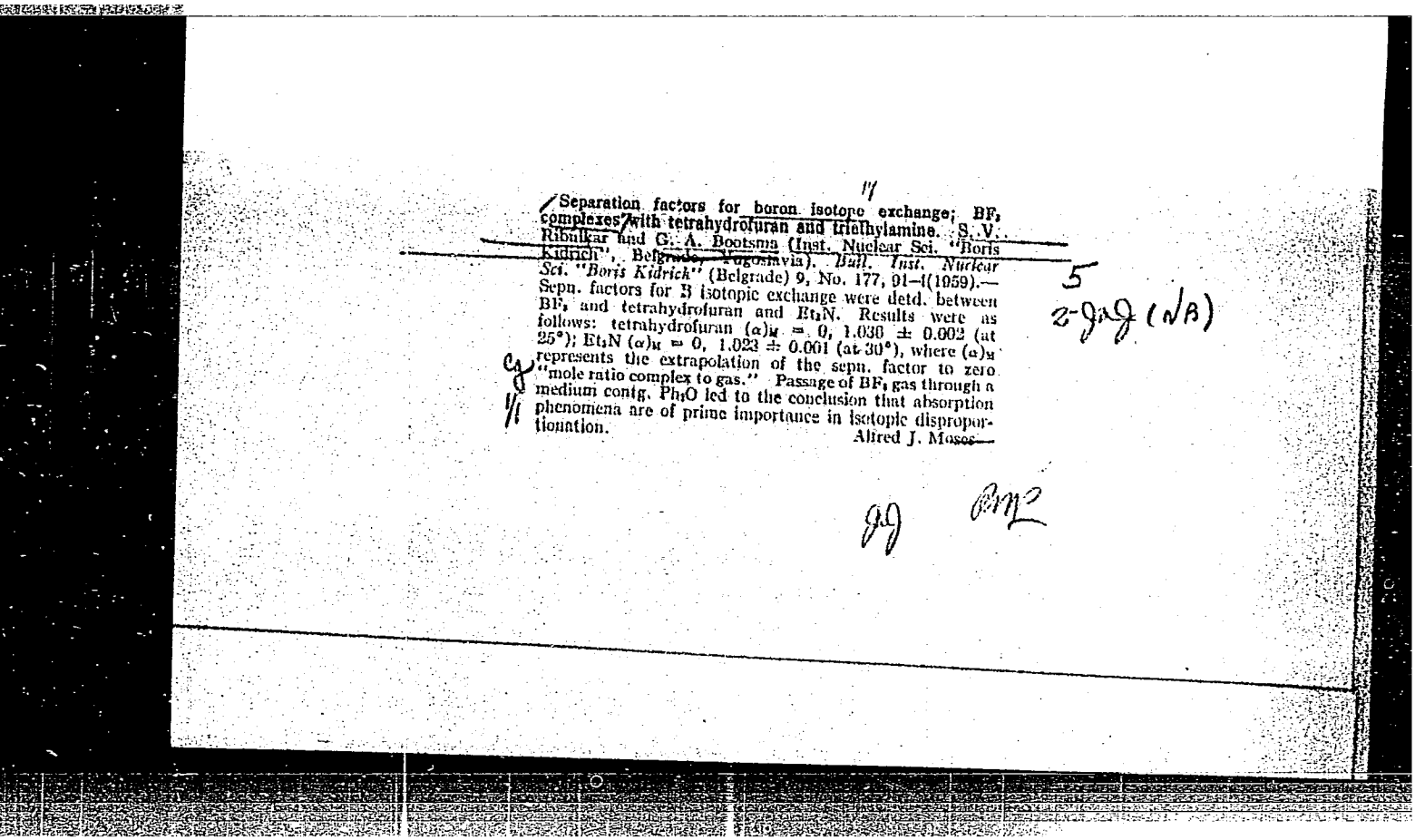
Card 1/1 aht

5

1-J.J (NB)

4E2c (j)

1.5c/J3W



Separation factors for boron isotope exchange; BF_3 complexes with tetrahydrofuran and triethylamine. S. V. Ribnikar and G. A. Bootsma (Inst. Nuclear Sci. "Boris Kidrich", Belgrade, Yugoslavia). *Bull. Inst. Nuclear Sci. "Boris Kidrich"* (Belgrade) 9, No. 177, 91–4(1959).—Sepn. factors for B isotopic exchange were detd. between BF_3 and tetrahydrofuran and Et_3N. Results were as follows: tetrahydrofuran $(\alpha)_M = 0$, 1.038 ± 0.002 (at 25°); Et_3N $(\alpha)_M = 0$, 1.023 ± 0.001 (at 30°), where $(\alpha)_M$ represents the extrapolation of the sepn. factor to zero "mole ratio complex to gas." Passage of BF_3 gas through a medium contg. Ph_2O led to the conclusion that absorption phenomena are of prime importance in isotopic disproportionation.

Alfred J. Mosos

BOPP, A.

HEYDER, W.; BOPP, A.

"'Igurit' a new structural material for the chemical industry. Tr. from the German." p. 221. (Magyar Kemikusok Lapja, Vol. 8, no. 8, Aug. 1953, Budapest)

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Bopp, Fritz

Bopp, Fritz. Lineare Theorie des Elektrons. II. Ann. Physik (5) 42, 573-608 (1942). [MF 10220]

[For part I cf. the same Ann. (5) 38, 345-384 (1940); these Rev. 2, 336.]

In Lorentz's theory of the electron the equation of motion contains, in addition to the inertia term and the radiation reaction, terms with higher derivatives of the coordinate. This means that new kinetic degrees of freedom are introduced and the trajectory of the electron cannot be defined uniquely by its initial position and velocity. Dirac has investigated the theory in which terms beyond the radiation reaction vanish and has shown that it is necessary to put a condition on the final acceleration of the electron in order to obtain sensible trajectories: thus he has had to give up the principle of causality. The present paper investigates conditions on a general theory of the electron whereby such an increase in the degree of freedom does not occur.

The first part of the paper deals with the development of a general linear theory of the electron along the lines of Mie and Born. Starting with the expression for the generalized potential the static potential, field equation and equations of motion are derived and special cases such as Dirac's theory and the author's earlier theory which combined the Maxwell field with a neutral Proca-Yukawa field are given.

The problem of the additional degrees of freedom is first considered by studying whether an electron at rest acted on by no external force can have any auxiliary motion; it is shown that it cannot if a certain general condition is satisfied. This condition, however, is not sufficient to rule out the new degrees of freedom since they may be hidden by a high degree of degeneracy which will only manifest itself in the presence of an external field. For this reason several simple types of external forces are considered and it is concluded that additional conditions must be imposed. In conclusion it is shown that the quantization of the general linear theory offers no essential difficulty. *S. Kusaka*

Source: Mathematical Reviews, Vol 3, No. 2

BOR, Dezso

Chemical problems of thermonuclear reactors. Musz elet 18 no.13:11 20 Je '63.

PARIZEK, V., inz.; BOR, J.

Suspended wall panels in the Institute of Macromolecular Chemistry. Stavivo 41 no.11; Supplement: Staviva a stavby: inserl N'63.

BOR,J.;MASOPUST,J.

Differentiation of types of congenital methemoglobinemia. Cesk. pediat. 19 no.3:233-238 Mr'64

1. II. detska klinika fakulty detskeho lekarstvi KU v Praze (prednosta:prof.dr.J.Houstek, DrSc.); a Biochemicka laborator detske fakultni nemocnice v Praze (vedouci: MUDr. J.Masopust, CSc.).

BOR, J.

Contribution of research institutes to an understanding of the technological process of constructing planned industrial buildings.

p. 170
Vol. 5, no. 4, 1955
ZA SOCIALISTICKOU VEDU A TECHNIKU
Praha, Czechoslovakia

Source: Monthly List of East European Accesions, (EEAL), LC, Vol. 5, no. 2 February 1956, Uncl.

L 44736-66

ACC NR: AF6032881 SOURCE CODE: CZ/0083/65/000/006/0395/0401

AUTHOR: Andrasinova, O.--Andrashinova, O.; Boor, J.--Beer, I. 8 B

ORG: Psychiatric Clinic, Medical Faculty, UPJS, Kosice (Psychiatricka klinika lekarskej fakulty UPJS)

TITLE: Analysis of enuresis nocturna in our clinical material 22

SOURCE: Ceskoslovenska psychiatrie, no. 6, 1965, 395-401

TOPIC TAGS: psychoneurotic discrder, psychiatry

ABSTRACT: Enuresis, which does not have an organic base, is a symptom of a neurosis, and it is one of its manifestations. It may have multiple and hidden causes. It is necessary to search for these causes very patiently and remove them to effect a cure. This type of therapy is causal for enuresis. Orig. art. has: 11 figures. [Based on authors' Eng. abst.] [JPRS: 34,161]

SUB CODE: 06 / SUBM DATE: none / ORIG REF: 006 / OTH REF: 006

Card 1/1 mjs

0920 0398

BOR, L., Dr.; RYSKOVA, M., Dr.; ZAHRADNICKY, J., Dr.

Prevention of rheumatic fever recurrences by continuous administration of oral penicillin. Cesk. pediat. 11 no.8: 597-609 Aug 56.

1. II. detska klinika KU v Praze, predn. prof. Dr. J. Houstek Detska klinika Hygienicke fakulty v Praze, predn. prof. Dr. J. Pisarovicova-Cizkova Ustav epidem. a mikrob. v Praze, predn.

(RHEUMATIC FEVER, in inf. & child
recur., prev. with continuous admin. of oral penicillin (Cz))

(PENICILLIN, ther. use
rheum. fever in child, prev. of recur., admin., continuous oral (Cz))

BOR, M.

Improving the standards of national economic planning.
Vop. ekon. no.3:3-14 Mr '63. (MIRA 16:3)
(Russia—Economic policy)

BOR, MIKHAIL ZAKHAROVICH

BALANS NARODNOGO KHOZYAYSTVA SSR (VOPROSY SOSTAVLENIYA PLANOVOGO BALANSA)

(BALANCE OF THE NATIONAL ECONOMY OF THE USSR) MOSKVA, GOSPOLITIZDAT, 1956.

125, (3) P. TABLES.

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[National income of a socialist society] Natsional'nyi dokhod sotsialisticheskogo obshchestva. Moskva, Izd-vo "Znanie," 1957. 31 p. (Vsesoyuznoe obshchestvo po rasprostraneniiu politicheskikh i nauchnykh znanii. Ser.3, no.31) (MIRA 11:2)
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Effect of the law of value and price determination on the production of Soviet industry. Vop. ekon. no.3:106-113 Mr '57. (MLRA 10:6)
(Prices) (Value)